

## DISTRIBUTION OF CADDISFLIES (TRICHOPTERA) IN DELAWARE<sup>1,2</sup>

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**ABSTRACT:** The distribution of Trichoptera in Delaware was studied. At the present time 54 genera and 143 species of Trichoptera are known from the State. Adult activity, method of capture and comments regarding abundance are included.

Published records of Delaware caddisflies are few. Thus far citations for nine species have been found: Betten (1934) (1) Ross (1944) (1) Gordon (1974) (1) Blickle (1979) (5) and Wiggins (1977) (1). Prior to the present study a survey of aquatic insects of Delaware was undertaken by F. Boys, T. Evans, L. Kelsey and D. Nye of the Department of Entomology and Applied Ecology, University of Delaware during 1967 and 1968. They concentrated on collecting the immature stages, therefore most determinations were made only to the generic level. They recorded 20 genera; nine taxa of trichopterans could be determined to the species level. Lesiewicz in 1971 continued the survey as a special problem on immature insects and reported 28 genera, 18 of which were determined to species. None of the above records were published but specimens from these studies were placed in the reference collection of the Department of Entomology and Applied Ecology, University of Delaware and these records in addition to mine have been used for reporting the distribution data herein. A few pinned specimens in the Department reference collection also yielded some state records.

Since 1976 I reared many caddisflies to the adult stage in the laboratory and thus obtained many species records for the state. In addition, through the cooperation of personnel in the Integrated Pest Management program of the Department, hundreds of UV light trap collections of insects were examined and adult trichopterans removed for determination. Some adults also were collected from traps operated by the Mosquito Control Section, Department of Natural Resources and Environmental Control of Delaware. Two types of traps are used by the Mosquito Control Section: (1) the conventional New Jersey Light Trap (NJLT) and (2) the Center for Disease Control (CDC) portable battery operated trap.

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As mentioned in a previous paper on Plecoptera distribution in Delaware (Lake 1980), Delaware lies within two natural physiographic provinces, the Piedmont and the Coastal Plain. The Piedmont comprises a very small portion at the northern end of the State with the Coastal Plain including approximately 75 percent of the land mass (Fig. 1). Much of the aquatic fauna is therefore found in warm lotic and lentic habitats with species associated with cooler water situations being absent or restricted to the Piedmont.

At the present time 54 genera and 143 species of Trichoptera are known from Delaware with all 18 Nearctic families being represented by one or more species.

Distribution data, adult activity plus additional comments are presented below in Table 1 for each species. More detail is included for rare or uncommon species. Abbreviations used in Table 1 and their explanations are as follows:

NC — New Castle County

K — Kent County

S — Sussex County

B — Adults collected near breeding site by net, hand or aspiration

R — Adults reared from larvae or pupae

CDC — Center for Disease Control Light Trap

NJ — New Jersey Light Trap

UV — UV Light Trap

X — Indicates larval collection; sometimes reared to adult for determination or determined to species in the larval stage.

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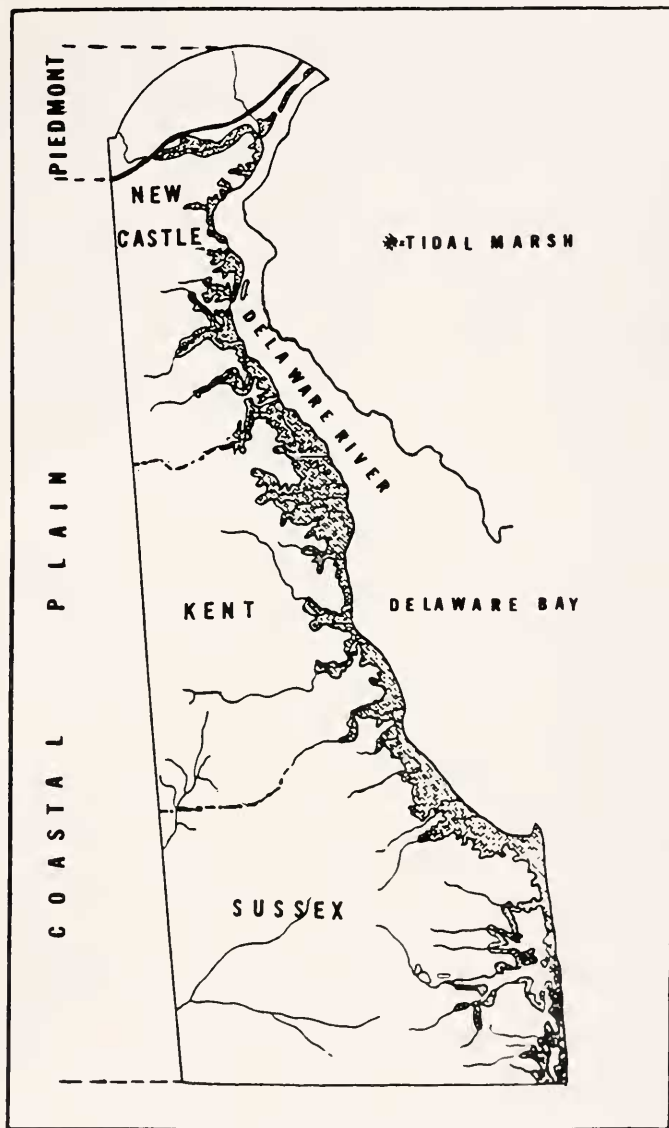


Fig. 1 Map of Delaware showing counties, tidal marshes and physiographic provinces.

Table 1. Distribution of Trichoptera in Delaware

Family & Species	County	Adults	Larvae	Adult Activity	Comments
<b>Beraeidae</b>					
<i>Beraea nigriflora</i> Banks	NC	B	X	May	Found only in seepage areas in Blackbird Cr. drainage
<b>Brachycentridae</b>					
<i>Brachycentrus numerosus</i> Say	NC,K,S	B	X	Apr-May	Most abundant in Coastal Plain, Sussex Co.
<i>Micrasema</i> sp.	S	UV			1 female, Laurel, Sussex Co.
<b>Calamoceratidae</b>					
<i>Anisocentropus pyraloides</i> (Walker)	NC,S	R,UV	X	June	Larvae found in Blackbird Cr. NC Co. and Sheep Pen Ditch Millsboro S. Co.
<i>Heteroplectron americanum</i> (Walker)	NC,K,S	B,R,UV	X	May-Jun	Most abundant in Coastal Plain streams
<b>Glossosomatidae</b>					
<i>Agapetus iridis</i> Ross	K	B			1 male from collection in red clover, Milford
<i>Agapetus minutus</i> Sibley	NC	B		June	In Piedmont only
<i>Glossosoma nigriflor</i> Banks	NC	R	X	Apr-Oct	Most abundant in Piedmont
<i>Protoptila</i> sp.	NC		X		No adults have been reared or collected
<b>Helicopsychidae</b>					
<i>Helicopsyche borealis</i> (Hagen)	NC	R,UV	X	May	Larvae found in Blackbird Cr. only; 1 adult, Newark
<b>Hydropsychidae</b>					
<i>Cheumatopsyche campyla</i> Ross	NC,K,S	UV		May-Sep	
<i>Cheumatopsyche ela</i> Denning	K,S	UV		May-Aug	
<i>Cheumatopsyche geora</i> Denning	NC,S	UV		May-Aug	Most abundant in Newark, NC Co.
<i>Cheumatopsyche pasella</i> Ross	NC	UV			2 males, Newark, VI-10-11-1981, VII-7-8-1981
<i>Cheumatopsyche pettiti</i> (Banks)	NC,K,S	B,UV,CDC NJ		Apr-Sep	
<i>Cheumatopsyche pinaca</i> Ross	NC,K,S	UV		May-Aug	
<i>Cheumatopsyche speciosa</i> (Banks)	NC	UV,NJ		Jun-Aug	
<i>Cheumatopsyche virginica</i> Denning	S	NJ			1 male Frankford, VI-11-13-1976

Table 1 Continued.

Family & Species	County	Adults	Larvae	Adult Activity	Comments
<i>Cheumatopsyche wabasha</i> Denning	NC,S	UV			1 male, Millsboro VII-27-1978 1 male, Newark VI-16-19-1981
<i>Diplectrona modesta</i> Banks	NC,K,S	R,UV	X	May-Aug	More common in NC Co. Piedmont
<i>Hydropsyche betteni</i> Ross	NC,K,S	B,UV		Apr-Sep	
<i>Hydropsyche decalda</i> Ross	S	NJ,UV		May-Jul	
<i>Hydropsyche dicantha</i> Ross	NC	UV		Jun-Aug	
<i>Hydropsyche hoffmani</i> Ross	NC	UV		May-Jun	6 males Newark trap
<i>Hydropsyche impula</i> Denning	NC	UV			2 males VII-13-14-81 Newark Trap
<i>Hydropsyche leonardi</i> Ross	NC,S	UV		Apr-Aug	Most collections Newark NC Co.
<i>Hydropsyche ophthalmica</i> Flint	NC	UV		May-Aug	Newark Trap only NC Co.
<i>Hydropsyche phalerata</i> Hagen	NC,S	B,UV		May-Jul	Most abundant in Newark Trap
<i>Hydropsyche scalaris</i> Hagen	NC,S	UV		May-Jul	Most abundant in Newark Trap
<i>Symphitopsyche bronta</i> Ross	NC,S	R,NJ,UV		May-Sep	More common in NC Co.
<i>Symphitopsyche morosa</i> (Hagen)	NC,K,S	UV		May-Sep	Most collections from Sussex Co.
<i>Symphitopsyche slossonae</i> (Banks)	NC	UV			1 male Newark NC Co., VI-7-81
<i>Symphitopsyche sparna</i> (Ross)	NC,K,S	B,UV		May-Sep	
<i>Symphitopsyche walkeri</i> (Betten & Mosley)	NC	NJ,UV		May-Aug	
<i>Macronema carolina</i> (Banks)	K	UV			1 male Wyoming, VI-25-27-80
<i>Macronema zebratum</i> (Hagen)	NC,K	UV		May-Aug	Common in Newark Trap; 1 male Clayton, Kent Co.
<i>Potamyia flava</i> (Hagen)	NC	UV		May-Sep	Abundant in Newark Trap
<b>Hydroptilidae</b>					
<i>Agryptea multipunctata</i> Curtis	NC	UV		May-Sep	3 females Newark
<i>Hydroptila consimilis</i> Morton	NC	NJ			1 male Arden IX-5-1980
<i>Hydroptila metoecca</i> Blickle & Morse					Blickle (1979) records this species from Delaware

Table 1 Continued.

Family & Species	County	Adults	Larvae	Adult Activity	Comments
<i>Hydroptila perdita</i> Morton	NC	NJ			1 male Newport VII-13-1980
<i>Hydroptila spatulata</i> Morton	NC	UV			1 male Newark VIII-27-29-1982
<i>Hydroptila virgata</i> Ross	S	R	X		A large series of adults reared from Smith Hill
<i>Hydroptila waubesiana</i> Betten	NC	B,NJ			1 male Delaware City IV-22-1980 1 male Newport VII-13-1981
<i>Hydroptila zonela</i> Ross	S	R	X		Smith Hill — larvae 11-4-1975
<i>Leucotrichia pictipes</i> (Banks)	NC	B	X		Only in Piedmont
<i>Ochrotrichia</i> sp.	NC,K,S		X		4 larval collections
<i>Orthotrichia aegerfasciella</i> (Chambers)	NC	NJ			1 male Bellevue, 1 male Newport
<i>Orthotrichia cristata</i> Morton					Blickle (1979) records this species from Delaware
<i>Oxyethira grisea</i> Betten	S	B			James Branch IV-28-78 on bridge adults abundant
<i>Oxyethira obtatus</i> Denning					Blickle (1979) records this species from Delaware
<i>Oxyethira pallida</i> (Banks)	NC,S	NJ		Aug-Sep	Wilmington NC Co. Aug-Sept. Lewes S. Co. Sept.
<b>Leptoceridae</b>					
<i>Ceraclea alagma</i> (Ross)	K,S	UV		June-Jul	1 male Leipsic, 1 male Felton, K Co. 1 male Georgetown S Co.
<i>Ceraclea ancylus</i> (Vorhies)	NC	UV			1 male Newark NC Co. VI-20-22-1980
<i>Ceraclea cancellata</i> (Betten)	NC,K,S	UV		May-Jul	
<i>Ceraclea diluta</i> (Hagen)	NC	R	X		Found only in Blackbird Creek
<i>Ceraclea flava</i> (Banks)	NC	UV		June-Jul	3 males Newark
<i>Ceraclea maculata</i> (Banks)	NC,K,S	NJ,UV		May-Aug	
<i>Ceraclea nepha</i> (Ross)	NC,K,S	UV	X	May-Aug	More abundant in Sussex Co.
<i>Ceraclea protonepha</i> Morse & Ross	K,S	UV		May-Jun	Most collections from Sussex Co.
<i>Ceraclea tarsipunctata</i> (Vorhies)	NC,K,S	NJ,UV	X	May-Jul	

Table 1 Continued.

Family & Species	County	Adults	Larvae	Adult Activity	Comments
<i>Ceraclea transversa</i> (Hagen)	NC,K,S	UV	X	May-Aug	Most records from Coastal Plain
<i>Leptocerus americanus</i> (Banks)	S	UV		Jun-Jul	Four localities in Sussex Co.
<i>Mystacides sepulchralis</i> (Walker)	NC,S	R,UV	X	Jun-Aug	Uncommon
<i>Nectopsyche</i> nr. <i>diarva</i>	NC	R	X		Reared males close to <i>diarva</i>
<i>Nectopsyche exquisita</i> (Walker)	NC,S	UV		Jun-Aug	Newark NC Co. July-Aug Bridgeville Sussex Co. June
<i>Oecetis avara</i> (Banks)	NC	UV		Jun-Aug	Newark Trap 2 males 2 females
<i>Oecetis cunerascens</i> (Hagen)	NC,K,S	NJ,UV		May-Sep	
<i>Oecetis inconspicua</i> (Walker)	NC,K,S	B,NJ,R,UV	X	May-Sep	
<i>Oecetis persimilis</i> (Banks)	NC,K,S	R,NJ,UV	X	Jun-Aug	
<i>Traenodes aba</i> Milne					1 male July 1874 Coll. SH. MCZ
<i>Traenodes ignita</i> (Walker)	NC,K,S	B,R,CDC,UV	X	Jun-Sep	
<i>Traenodes injusta</i> (Hagen)	S	UV		Jun-Jul	Greenwood 1 male Bridgeville 1 male
<i>Traenodes marginata</i> Sibley	NC,S	UV		May-Jul	Most collections from Sussex Co.
<i>Traenodes ochracea</i> Betten & Mosely	NC,S	R,NJ,UV	X	Jun-Aug	Collected more in Sussex County Traps
<i>Traenodes perna</i> Ross	K	B			2 males Canterbury IV-22-55
<i>Traenodes tarda</i> Milne	NC,S	UV	X	May-Jul	Only 3 males collected
<b>Lepidostomatidae</b>					
<i>Lepidostoma americanum</i> (Banks)	NC	UV			1 male New Castle VII-3-6-80
<i>Lepidostoma costalis</i> (Banks)	NC	R	X		1 female Ashland
<i>Lepidostoma griseum</i> (Banks)	NC,S	R,UV	X		Most specimens reared from larvae
<i>Lepidostoma latipennis</i> (Banks)	K,S	R,UV	X		Most adults from Wyoming Trap, Sussex Co.
<i>Lepidostoma somnermanae</i> Ross	NC	R	X		Larvae in seep Ashland VI-28- 78
<i>Lepidostoma togatum</i> (Hagen)	NC,S	UV			1 male Bridgeville VI-10-71 1 female Newark VI-6-83
<b>Limnephilidae</b>					
<i>Frenesia difcilis</i> (Walker)	NC	R,UV	X	Oct-Nov	Mostly larval collections seeps and spring brooks

Table 1 Continued.

Family & Species	County	Adults	Larvae	Adult Activity	Comments
<i>Frenesia missa</i> (Milne)	NC	B,R,UV		Oct-Nov	Common in seeps & spring brooks
<i>Goera calcarata</i> Banks	NC	UV	X		Larvae in Pike Creek and trib of Shallcross Lake, 1 male Newark
<i>Hydatophylax argus</i> (Harris)	NC,K,S	R,UV	X	May-Jun	
<i>Ironoquia kaskaskia</i> Ross	NC,S	CDC,NJ,UV		Sep-Oct	4 males Sussex Co. - Rare 2 males New Castle Co.
<i>Ironoquia parvula</i> (Banks)	NC,K	UV	X	Oct	
<i>Ironoquia punctatissima</i> (Walker)	NC,K,S	R,CDC, NJ,UV	X	Sep-Oct	
<i>Limnephilus moestus</i> Banks	NC	UV			1 female Middletown V-30-1981
<i>Limnephilus ornatus</i> Banks	NC,K,S	UV		Jun-Jul	
<i>Limnephilus submonilifer</i> Walker	NC,K,S	NJ,UV	X	Mar-Nov	
<i>Neophylax oligius</i> Ross	NC	R,UV	X	Sep-Oct	In Piedmont streams
<i>Platycentropus radiatus</i> (Say)	NC,K,S	R,UV	X	Apr-Jul	
<i>Pycnopsyche gentilis</i> (McLachlan)	NC	R	X		In Piedmont streams
<i>Pycnopsyche guttifer</i> (Walker)	NC,S	R	X	Sept	Many adults reared
<i>Pycnopsyche indiana</i> (Ross)	NC,K,S	R,UV	X	Sep-Oct	
<i>Pycnopsyche lepida</i> (Hagen)	K,S	UV		Aug-Sep	8 males collected
<i>Pycnopsyche luculenta</i> (Betten)	NC,K,S	UV	X	Sep-Oct	
<i>Pycnopsyche scabripennis</i> (Rambur)	NC,K,S	R,CDC,UV	X	Aug-Oct	
<i>Pycnopsyche subfasciata</i> (Say)	NC,S	R,UV	X	Sept	
<b>Molannidae</b>					
<i>Molanna blenda</i> Sibley	NC,K,S	R,NJ,UV	X	Jun-Sep	
<i>Molanna tryphena</i> Betten	NC,K,S	B,R,CDC NJ,UV	X	Jun-Sep	
<i>Molanna ulmerina</i> Navas	S	B,UV		May-Sep	
<b>Odontoceridae</b>					
<i>Psilotreta frontalis</i> Banks	NC,K,S	B,R,UV	X	May-Jun	
<i>Psilotreta rufa</i> (Hagen)	NC	B,MR	X	May-Jun	Local in spring seeps



Table 1 Continued.

Family & Species	County	Adults	Larvae	Adult Activity	Comments
<b>Philopotamidae</b>					
<i>Chimarra aterrima</i> Hagen	NC,K,S	B,NJ,UV	X	Apr-Oct	
<i>Chimarra obscura</i> (Walker)	NC,S	UV		Jun-Aug	
<i>Dolophilodes distinctus</i> (Walker)	NC	B,NJ,UV	X	Jan-Dec	Common in Piedmont
<i>Wormaldia moesta</i> (Banks)	NC,K,S		X		Larval collections in Mar & May
<b>Phryganeidae</b>					
<i>Agrypnia vestita</i> (Walker)	NC,K,S	R,UV	X	May-Sep	
<i>Oligostomis ocelligera</i> (Walker)	NC,K		X		
<i>Phryganea sayi</i> Milne	NC,K,S	UV	X	Jun-Sep	
<i>Ptilostomis angustipennis</i> (Hagen)	NC,S	UV		Jun-Jul	1 male Georgetown Sussex Co. 1 male Clayton NC Co.
<i>Ptilostomis ocellifera</i> (Walker)	NC,K,S	R,UV		May-Sep	
<i>Ptilostomis postica</i> (Walker)	NC,S	UV		May-Sep	
<b>Polycentropodidae</b>					
<i>Cerootna spicata</i> Ross	NC,S	NJ,UV		Jun-Sep	
<i>Cymellus fraternus</i> (Banks)	NC	NJ,UV		Jun-Sep	Common in Piedmont
<i>Neureclipsis crepuscularis</i> (Walker)	NC	UV		Jun-Aug	Newark Trap only
<i>Nyctiophylax affinis</i> (Banks)	NC,K,S	UV		May-Aug	Locally abundant
<i>Nyctiophylax dennungi</i> Morse	NC,K	R,UV	X	May-Jun	Collected twice, rare
<i>Phylocentropus carolinus</i> Carpenter	S	B,UV		Jun-Aug	Collected only at Smith Hill James Branch
<i>Phylocentropus lucidus</i> (Hagen)	NC,K,S	B,CDC, NJ,R,UV	X	May-Sep	Fairly common in seep areas
<i>Phylocentropus placidus</i> (Banks)	NC,K,S	B,CDC, NJ,R,UV	X	May-Oct	
<i>Polycentropus blicklei</i> Ross and Yamamoto	S	UV			1 male Milton VI-23-24-82
<i>Polycentropus chenoides</i> Ross and Yamamoto	S	UV			1 male Georgetown V-18-24-76 1 male Laurel IX-13-81
<i>Polycentropus cinereus</i> Hagen	NC,K,S	NJ,UV		May-Sep	
<i>Polycentropus elinei</i> (Milne)	K,S	UV			1 male Milford VI-18-81 1 male Wyoming V-6-7-82

Table 1 Continued.

Family & Species	County	Adults	Larvae	Adult Activity	Comments
<i>Polycentropus confusus</i> Hagen	NC	UV			1 male Newark VI-17-80
<i>Polycentropus crassicornis</i> Walker	NC,K,S	UV		May-Jun	Collected from 12 locations, DE
<i>Polycentropus interruptus</i> (Banks)	S	UV			1 male Bridgeville V/14-16/82
<i>Polycentropus nascotius</i> Ross	S	B			1 male on bridge — Smith Hill IV-28-78
<i>Polycentropus remotus</i> Banks	S	UV			Milton VI-14-15-82, V-26-27-82
<b>Psychomyiidae</b>					
<i>Lype diversa</i> Banks	NC,K,S	B,CDC NJ,UV	X	Apr.-Sept	
<i>Psychomyia flavida</i> Hagen	NC	UV			2 females Newark Trap VII-20-82, V-8-13-1981
<b>Rhyacophilidae</b>					
<i>Rhyacophila carolina</i> (Banks)	NC	B		Apr-Sep	Piedmont streams
<i>Rhyacophila fuscula</i> (Walker)	NC	B	X		Montchanin — 1 larva II-10-67
<i>Rhyacophila invaria</i> (Walker)	NC	B			1 male VI-9-77 Piedmont
<i>Rhyacophila ledra</i> Ross	NC	UV			3 males, 1 female Newark VI-6-12-83 Larvae-Townsend
<i>Rhyacophila torva</i> Hagen	NC	B		Mar-Aug	Piedmont
<b>Sericostomatidae</b>					
<i>Agarodes grisea</i> (Banks)	NC,K,S	R,UV	X	May-Jun	In spring seeps locally dist.
<i>Agarodes libalis</i> Ross and Scott	NC,K,S	R,UV	X	May-Aug	In coastal plain streams.